FIG. 1

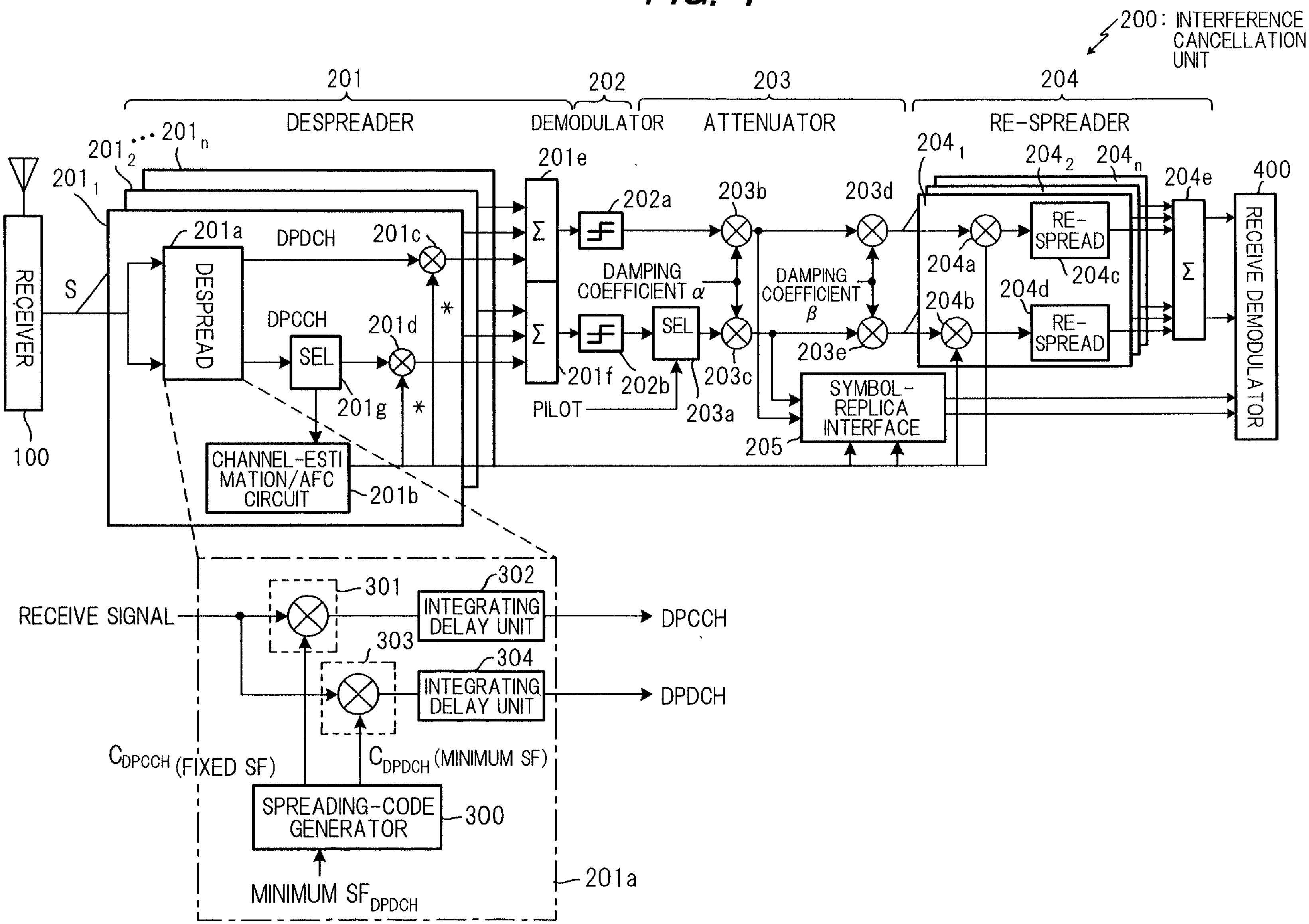

200: INTERFERENCE CANCELLATION UNIT
201
DESPREADER
202
DEMODULATOR
203
ATTENUATOR
204
RE-SPREADER
RECEIVER
100
S
201_1
201_2
201_n
201a
DESPREAD
DPDCH
DPCCH
SEL
201g
201c
201d
*
*
CHANNEL-ESTI MATION/AFC CIRCUIT
201b
201e
201f
Σ
Σ
202a
202b
PILOT
SEL
203a
DAMPING COEFFICIENT α
203b
203c
DAMPING COEFFICIENT β
203d
203e
SYMBOL-REPLICA INTERFACE
205
204_1
204_2
204_n
204a
204b
RE-SPREAD
204c
RE-SPREAD
204d
204e
Σ
400
RECEIVE DEMODULATOR
RECEIVE SIGNAL
301
302
INTEGRATING DELAY UNIT
DPCCH
303
304
INTEGRATING DELAY UNIT
DPDCH
C_{DPCCH} (FIXED SF)
C_{DPDCH} (MINIMUM SF)
SPREADING-CODE GENERATOR
300
MINIMUM SF_{DPDCH}
201a

FIG. 2

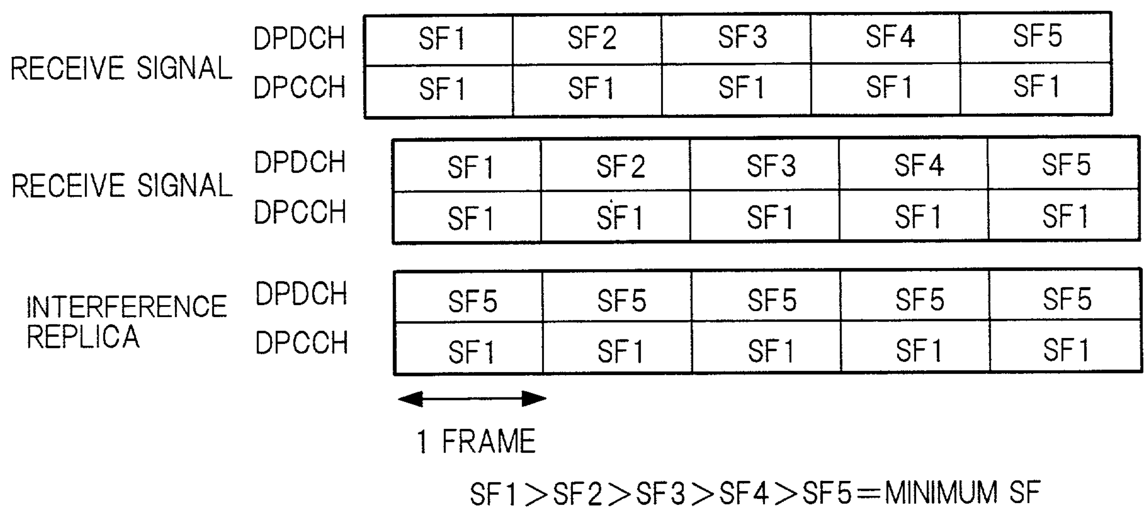

RECEIVE SIGNAL
DPDCH
SF1
SF2
SF3
SF4
SF5
DPCCH
SF1
SF1
SF1
SF1
SF1
RECEIVE SIGNAL
DPDCH
SF1
SF2
SF3
SF4
SF5
DPCCH
SF1
SF1
SF1
SF1
SF1
INTERFERENCE REPLICA
DPDCH
SF5
SF5
SF5
SF5
SF5
DPCCH
SF1
SF1
SF1
SF1
SF1
1 FRAME
SF1>SF2>SF3>SF4>SF5=MINIMUM SF

FIG. 3

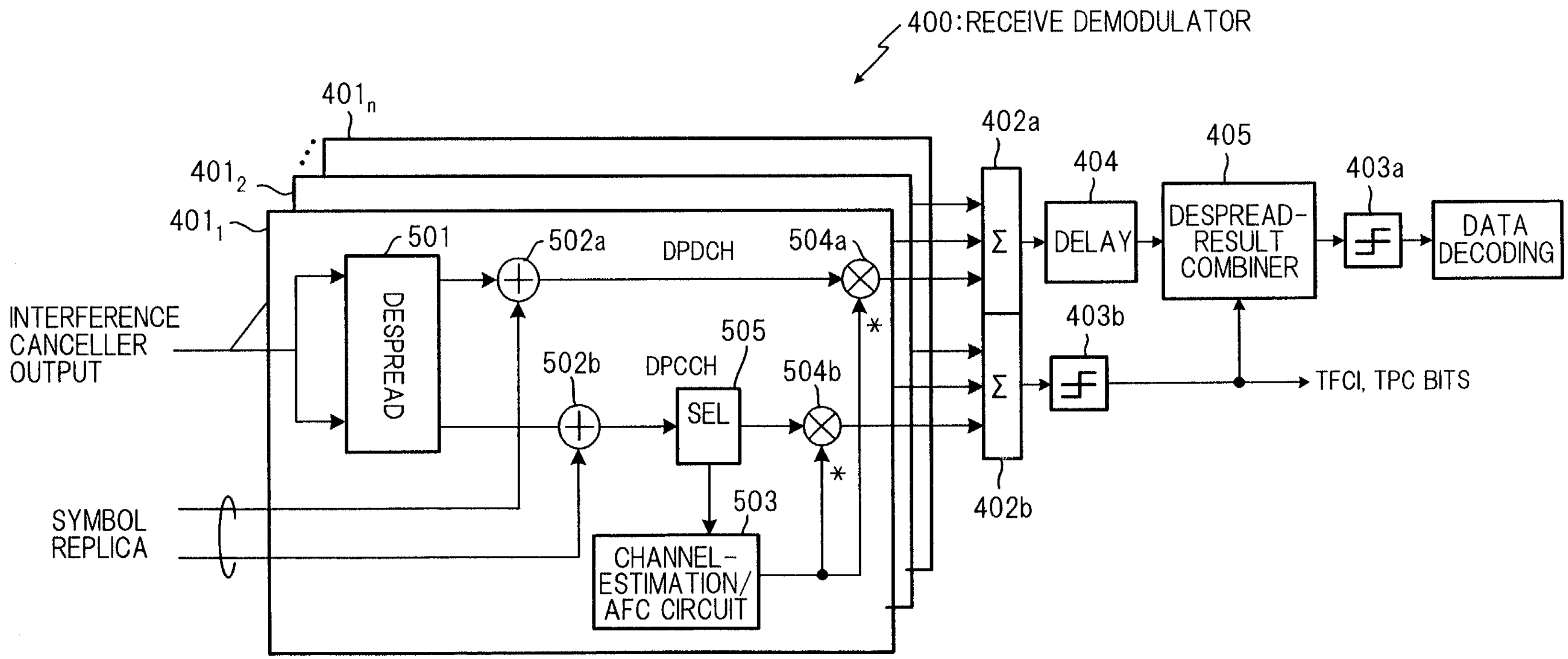

400:RECEIVE DEMODULATOR
401_n
401_2
401_1
INTERFERENCE CANCELLER OUTPUT
SYMBOL REPLICA
501
DESPREAD
502a
502b
DPDCH
DPCCH
505
SEL
503
CHANNEL-ESTIMATION/AFC CIRCUIT
504a
504b
*
*
402a
402b
Σ
Σ
404
DELAY
405
DESPREAD-RESULT COMBINER
403a
403b
DATA DECODING
TFCI, TPC BITS

FIG. 4

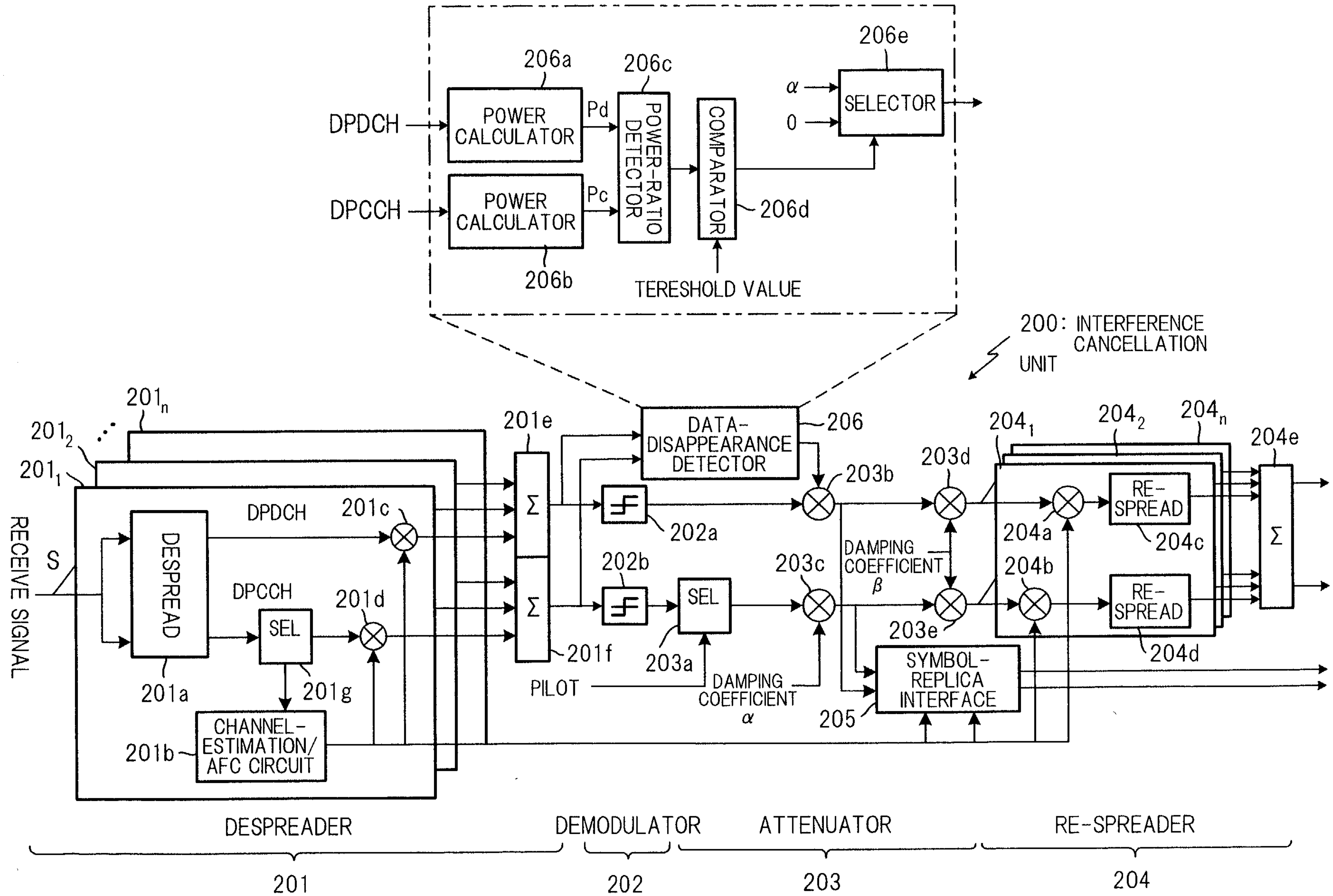
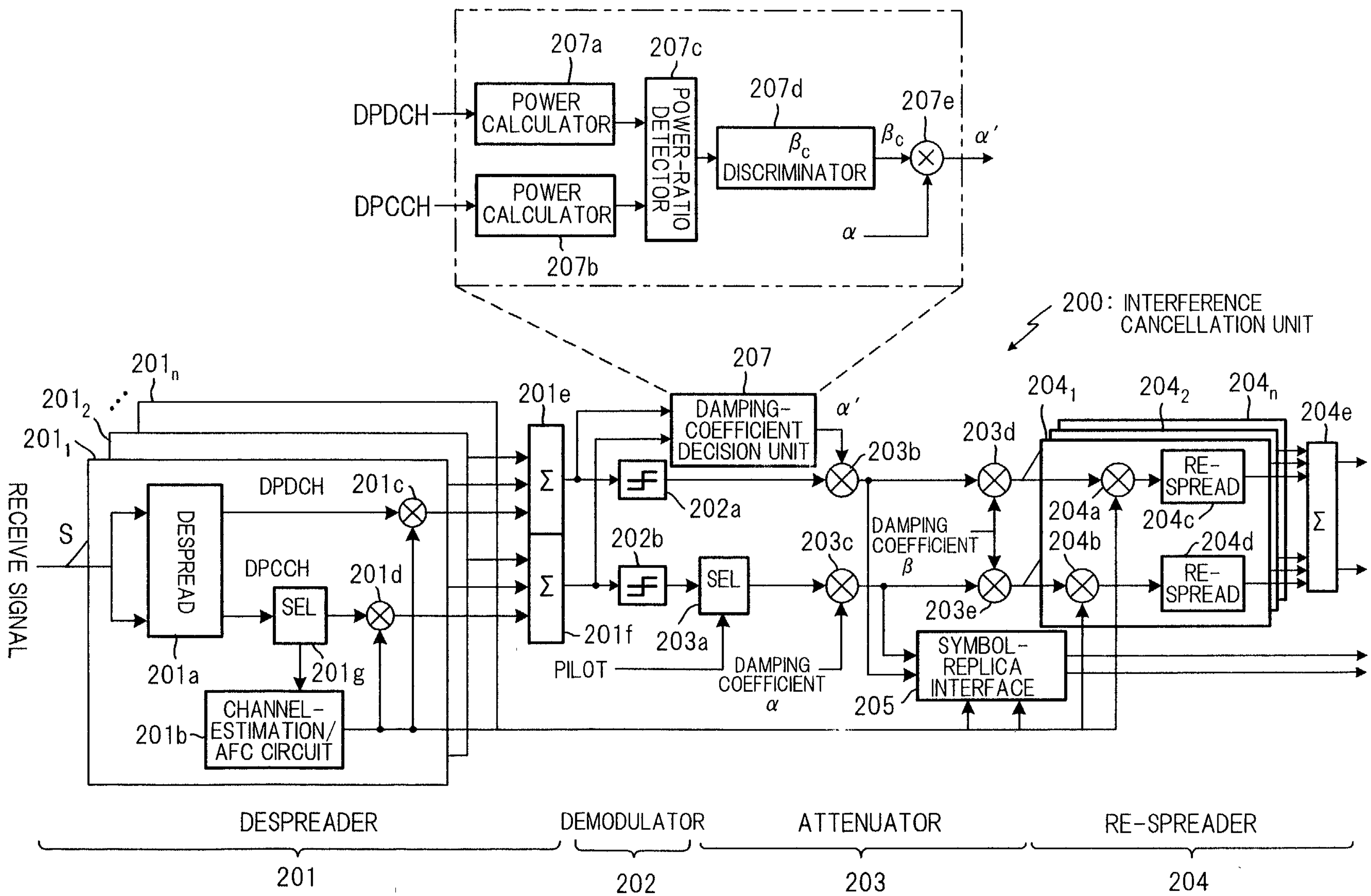

DPDCH
DPCCH
206a
POWER CALCULATOR
206b
POWER CALCULATOR
Pd
Pc
206c
POWER-RATIO DETECTOR
COMPARATOR
206d
TERESHOLD VALUE
206e
SELECTOR
α
0
200: INTERFERENCE CANCELLATION UNIT
RECEIVE SIGNAL
S
201_1
201_2
201_n
DESPREAD
201a
DPDCH
DPCCH
201c
201d
SEL
201g
CHANNEL-ESTIMATION/AFC CIRCUIT
201b
201e
201f
Σ
Σ
PILOT
202a
202b
SEL
203a
DAMPING COEFFICIENT α
DATA-DISAPPEARANCE DETECTOR
206
203b
203c
DAMPING COEFFICIENT β
203d
203e
SYMBOL-REPLICA INTERFACE
205
204_1
204_2
204_n
204a
204b
RE-SPREAD
204c
RE-SPREAD
204d
204e
Σ
DESPREADER
201
DEMODULATOR
202
ATTENUATOR
203
RE-SPREADER
204

FIG. 5



DPDCH
DPCCH
POWER CALCULATOR
POWER CALCULATOR
POWER-RATIO DETECTOR
β_c DISCRIMINATOR
β_c
α
α'
207a
207b
207c
207d
207e
200: INTERFERENCE CANCELLATION UNIT
RECEIVE SIGNAL
S
201_1
201_2
201_n
DESPREAD
DPDCH
DPCCH
SEL
CHANNEL-ESTIMATION/AFC CIRCUIT
201a
201b
201c
201d
201e
201f
201g
PILOT
202a
202b
SEL
203a
DAMPING-COEFFICIENT DECISION UNIT
207
DAMPING COEFFICIENT α
DAMPING COEFFICIENT β
203b
203c
203d
203e
SYMBOL-REPLICA INTERFACE
205
204_1
204_2
204_n
RE-SPREAD
RE-SPREAD
204a
204b
204c
204d
204e
DESPREADER
201
DEMODULATOR
202
ATTENUATOR
203
RE-SPREADER
204

FIG. 6

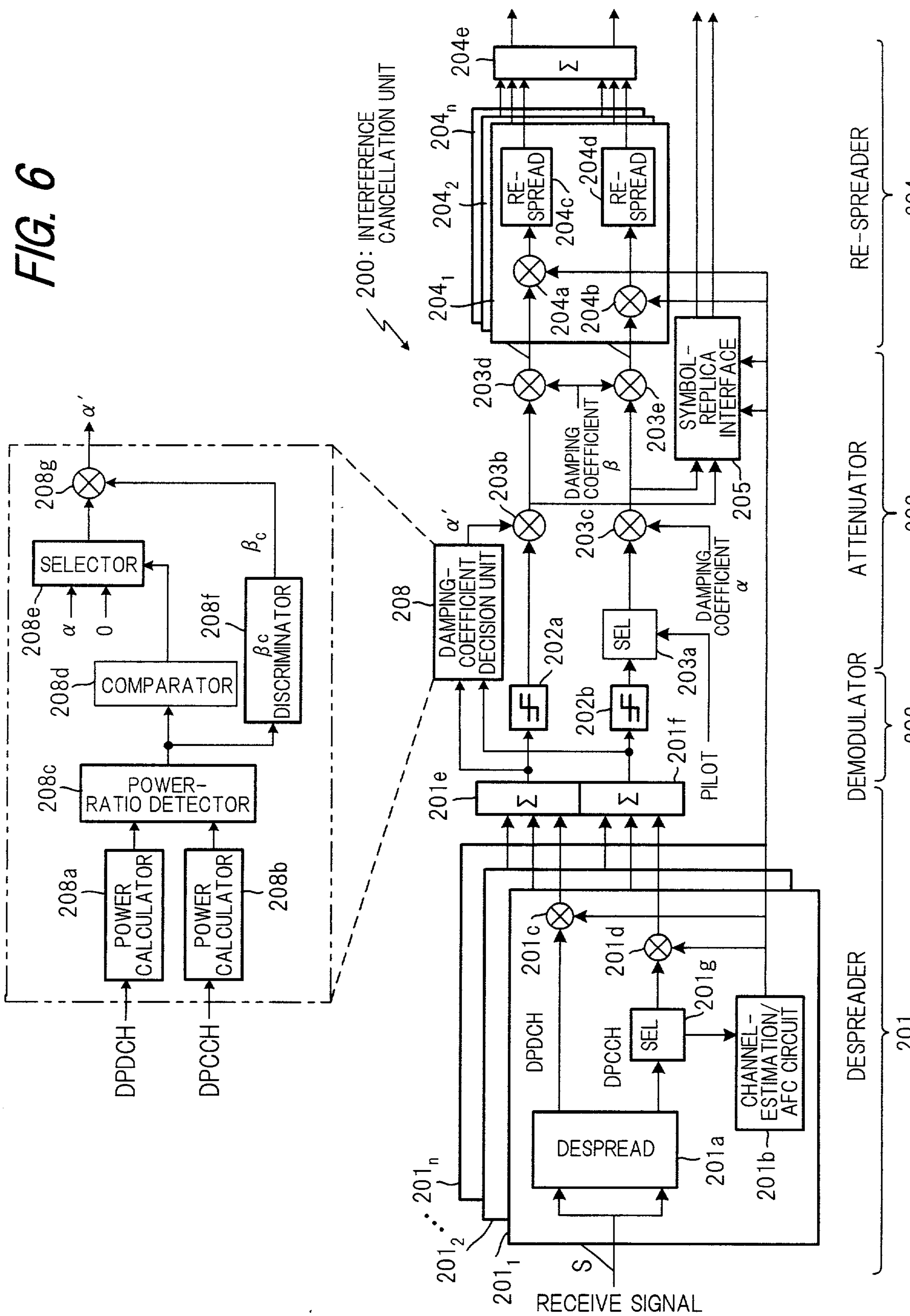
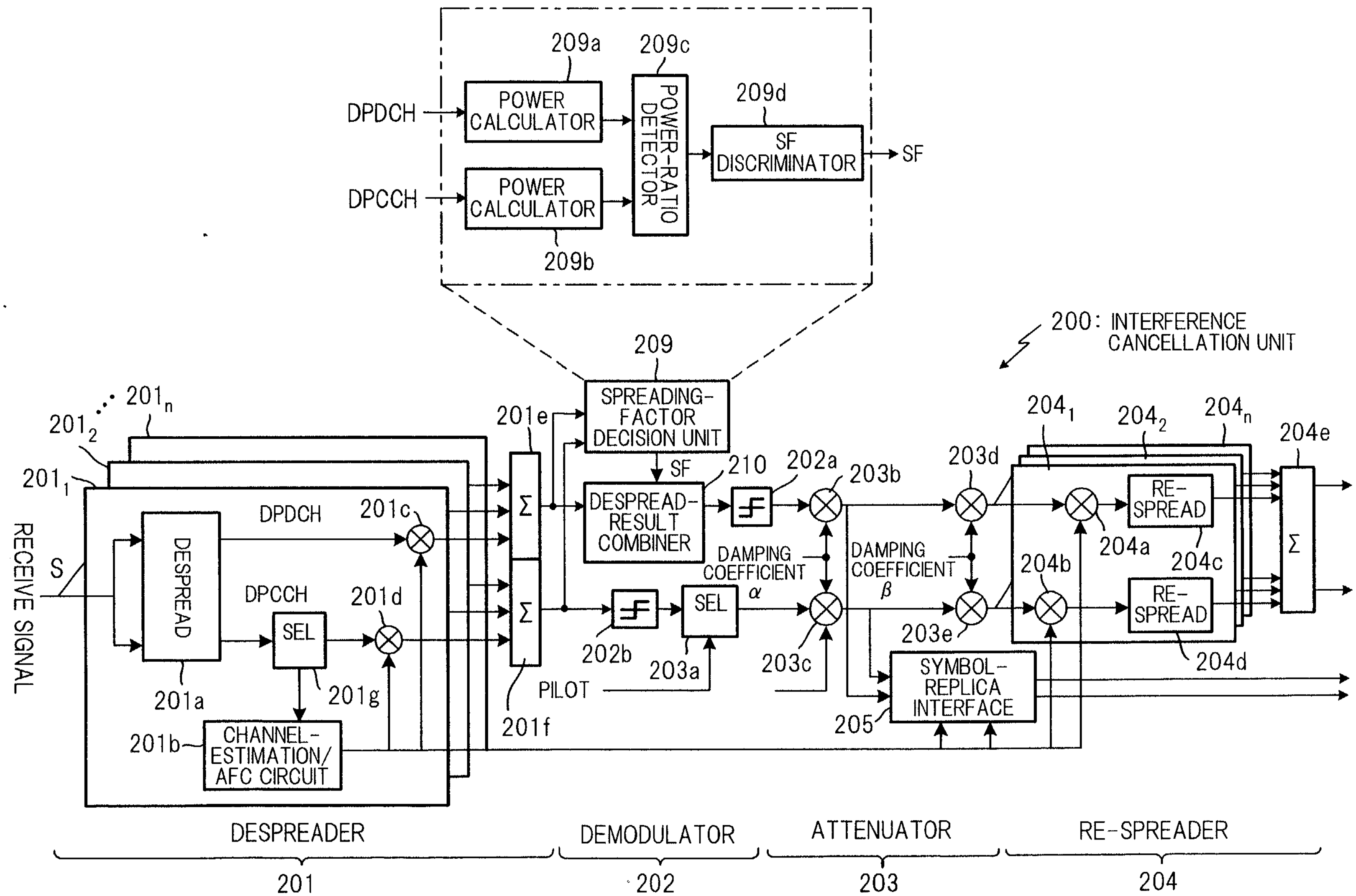
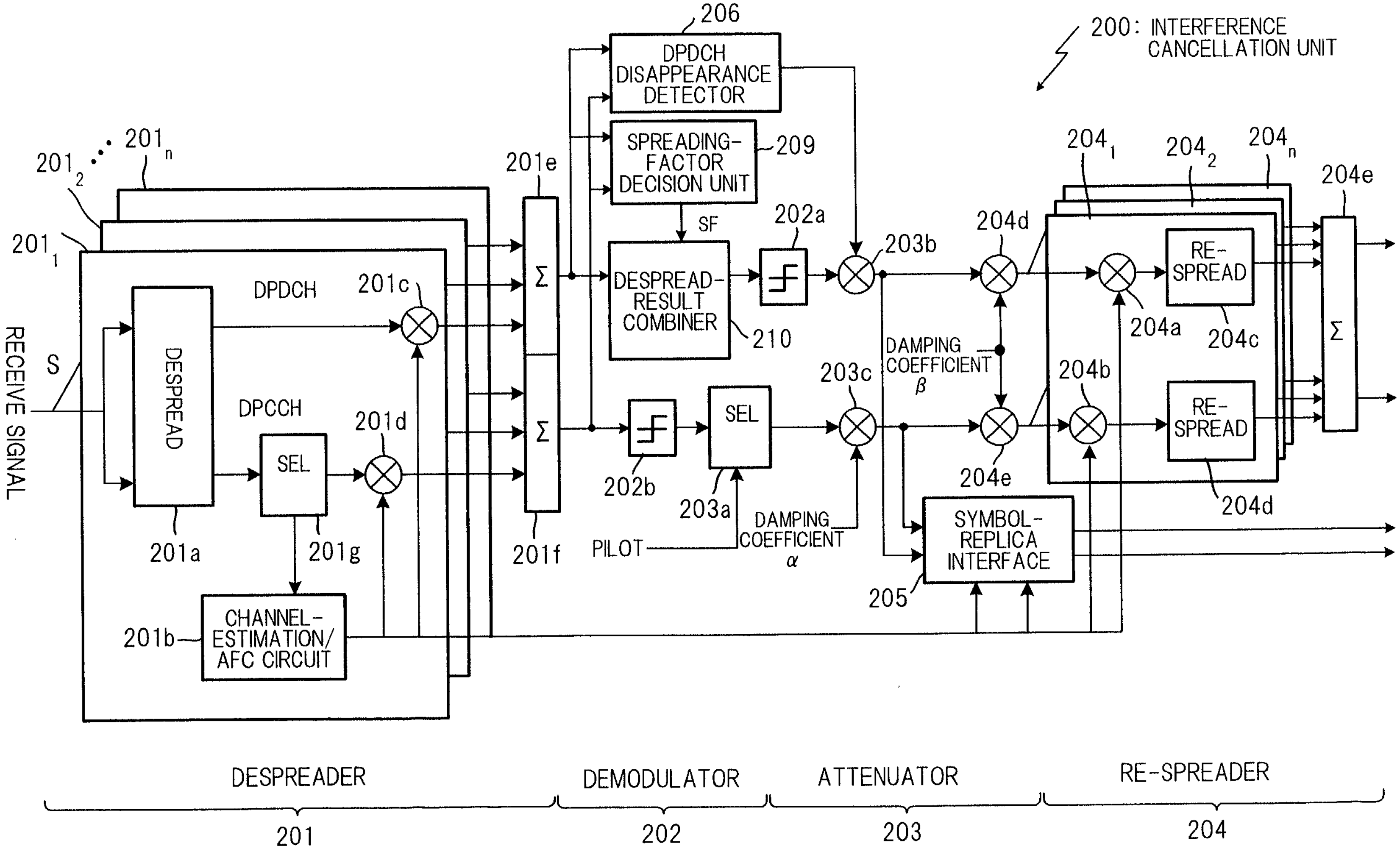

200: INTERFERENCE CANCELLATION UNIT
RECEIVE SIGNAL
S
201_1
201_2
201_n
DESPREAD
201a
201b
CHANNEL-ESTIMATION/AFC CIRCUIT
DPDCH
DPCCH
SEL
201g
201c
201d
201e
201f
Σ
Σ
PILOT
202a
202b
SEL
203a
DAMPING COEFFICIENT α
203b
203c
α′
DAMPING COEFFICIENT β
203d
203e
SYMBOL-REPLICA INTERFACE
205
208
DAMPING-COEFFICIENT DECISION UNIT
204_1
204_2
204_n
204a
204b
204c
204d
RE-SPREAD
RE-SPREAD
204e
Σ
DESPREADER
201
DEMODULATOR
202
ATTENUATOR
203
RE-SPREADER
204
DPDCH
DPCCH
POWER CALCULATOR
208a
POWER CALCULATOR
208b
POWER-RATIO DETECTOR
208c
COMPARATOR
208d
SELECTOR
208e
α
0
208f
βc DISCRIMINATOR
βc
208g
α′

FIG. 7



DPDCH
DPCCH
POWER CALCULATOR
POWER CALCULATOR
209a
209b
209c
POWER-RATIO DETECTOR
209d
SF DISCRIMINATOR
SF
209
SPREADING-FACTOR DECISION UNIT
200: INTERFERENCE CANCELLATION UNIT
RECEIVE SIGNAL
S
201_1
201_2
201_n
DESPREAD
201a
DPDCH
DPCCH
SEL
201g
201c
201d
201b
CHANNEL-ESTIMATION/AFC CIRCUIT
201e
201f
Σ
Σ
SF
210
DESPREAD-RESULT COMBINER
202a
202b
SEL
203a
PILOT
DAMPING COEFFICIENT α
203b
203c
DAMPING COEFFICIENT β
203d
203e
205
SYMBOL-REPLICA INTERFACE
204_1
204_2
204_n
204a
204b
RE-SPREAD
RE-SPREAD
204c
204d
204e
DESPREADER
201
DEMODULATOR
202
ATTENUATOR
203
RE-SPREADER
204

FIG. 8


200: INTERFERENCE CANCELLATION UNIT
RECEIVE SIGNAL
S
201_1
201_2
201_n
DESPREAD
201a
DPDCH
DPCCH
SEL
201g
201c
201d
CHANNEL-ESTIMATION/AFC CIRCUIT
201b
Σ
Σ
201e
201f
DPDCH DISAPPEARANCE DETECTOR
206
SPREADING-FACTOR DECISION UNIT
209
SF
DESPREAD-RESULT COMBINER
210
202a
202b
SEL
203a
PILOT
DAMPING COEFFICIENT α
203b
203c
DAMPING COEFFICIENT β
204d
204e
SYMBOL-REPLICA INTERFACE
205
204_1
204_2
204_n
204a
204b
RE-SPREAD
204c
RE-SPREAD
204d
Σ
204e
DESPREADER
201
DEMODULATOR
202
ATTENUATOR
203
RE-SPREADER
204

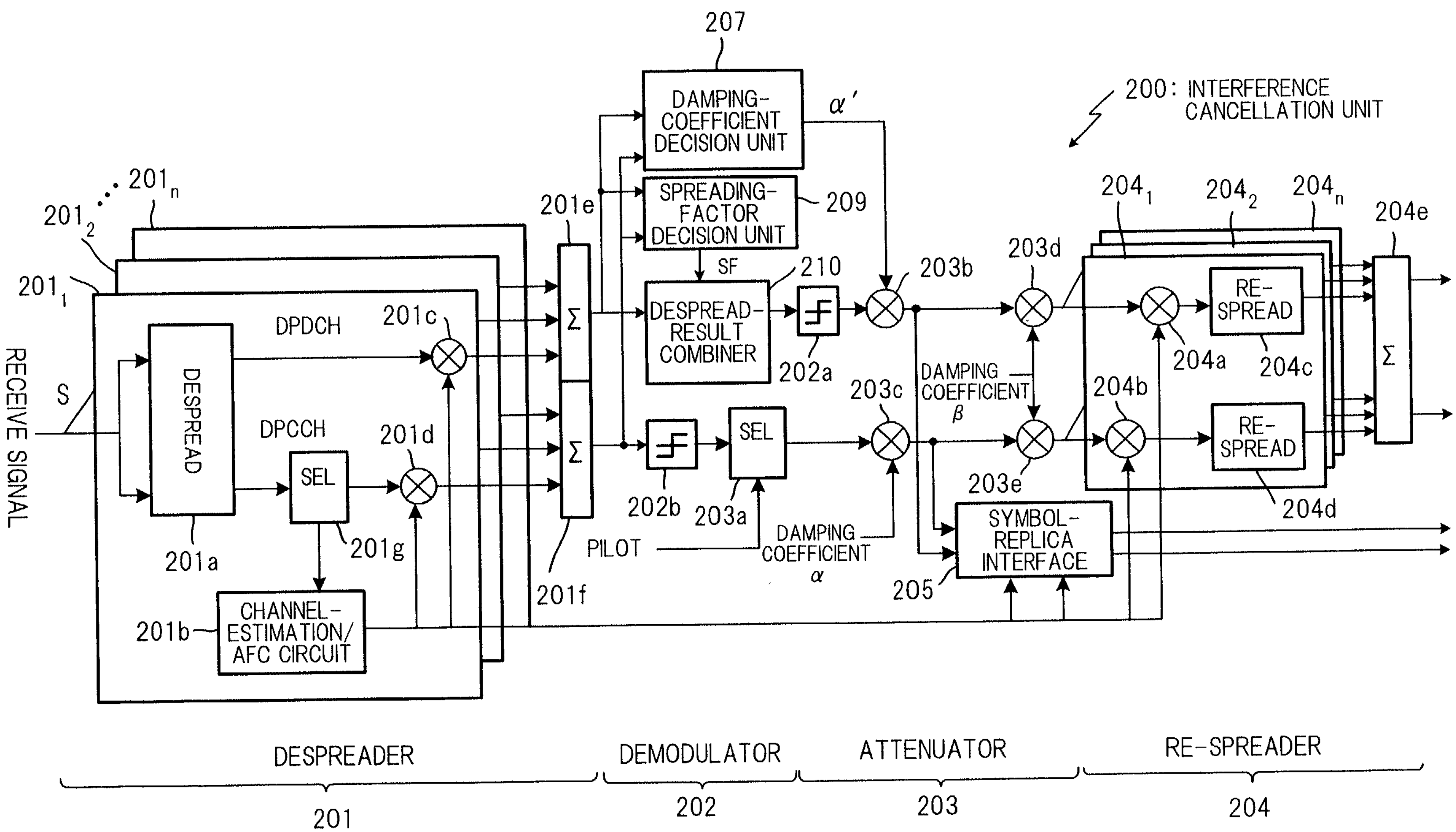

200: INTERFERENCE CANCELLATION UNIT
RECEIVE SIGNAL
S
201_1
201_2
201_n
DESPREAD
201a
DPDCH
DPCCH
SEL
201g
201c
201d
CHANNEL-ESTIMATION/AFC CIRCUIT
201b
201e
201f
Σ
Σ
207
DAMPING-COEFFICIENT DECISION UNIT
α'
SPREADING-FACTOR DECISION UNIT
209
SF
DESPREAD-RESULT COMBINER
210
202a
202b
SEL
203a
PILOT
DAMPING COEFFICIENT α
203b
203c
203d
203e
DAMPING COEFFICIENT β
SYMBOL-REPLICA INTERFACE
205
204_1
204_2
204_n
204a
204b
RE-SPREAD
204c
RE-SPREAD
204d
204e
Σ
DESPREADER
201
DEMODULATOR
202
ATTENUATOR
203
RE-SPREADER
204

FIG. 9

FIG. 10 PRIOR ART

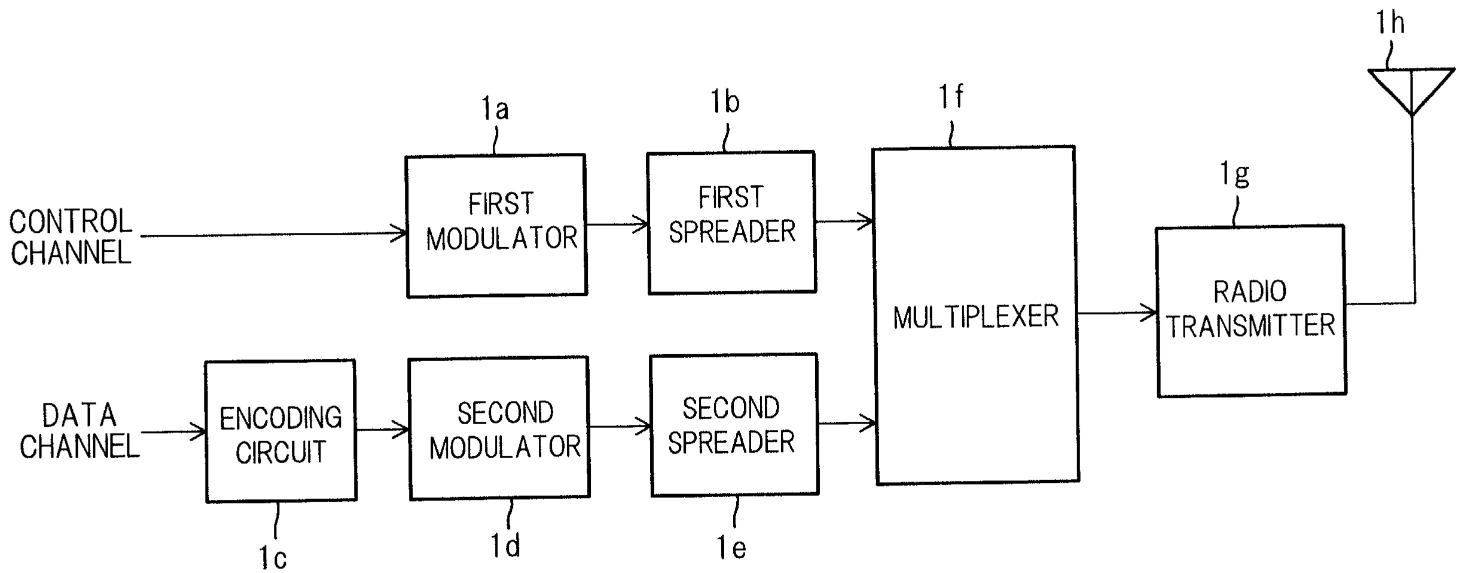
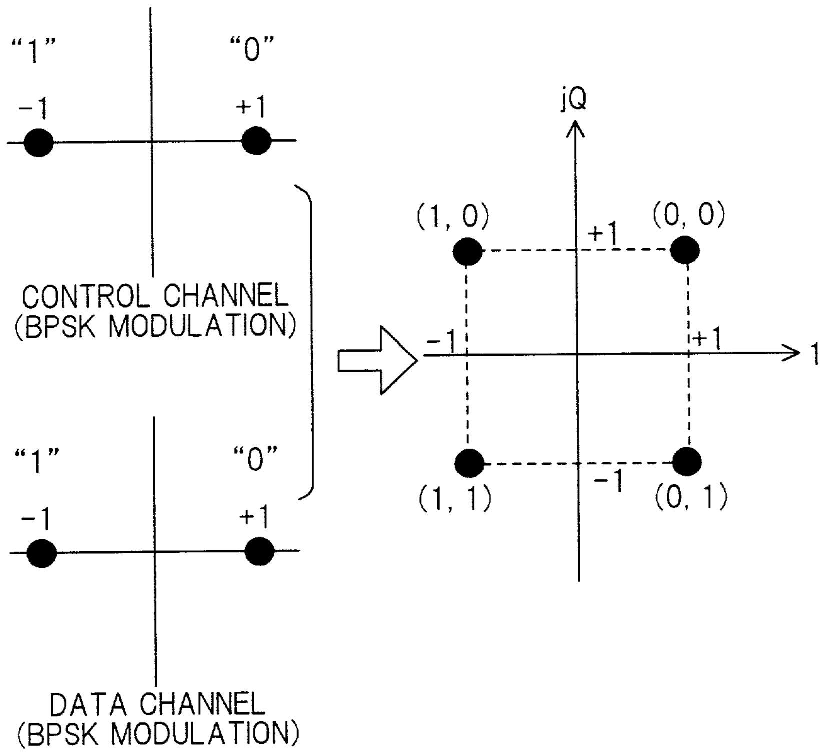


FIG. 11 PRIOR ART



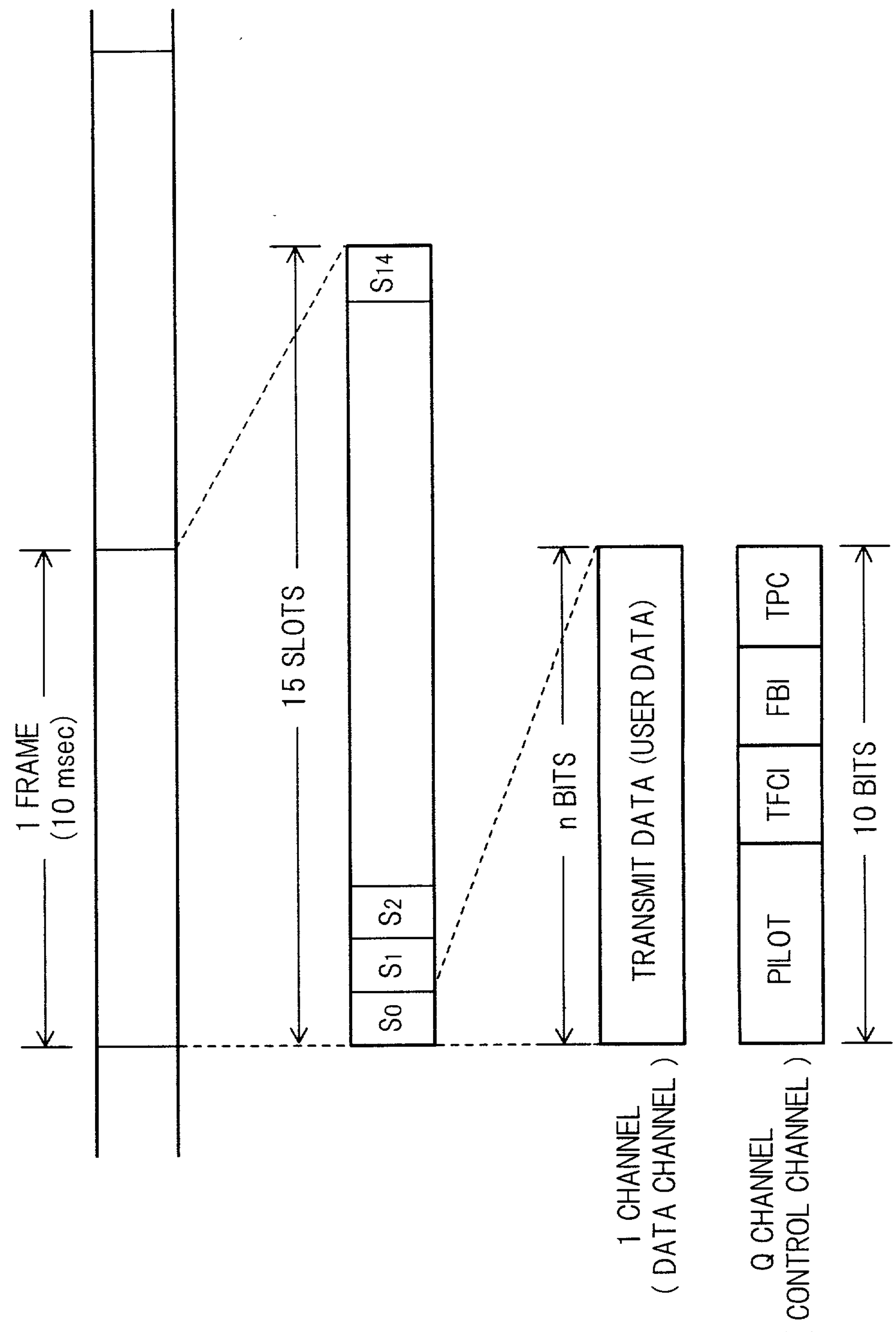


FIG. 12 PRIOR ART

FIG. 13 PRIOR ART

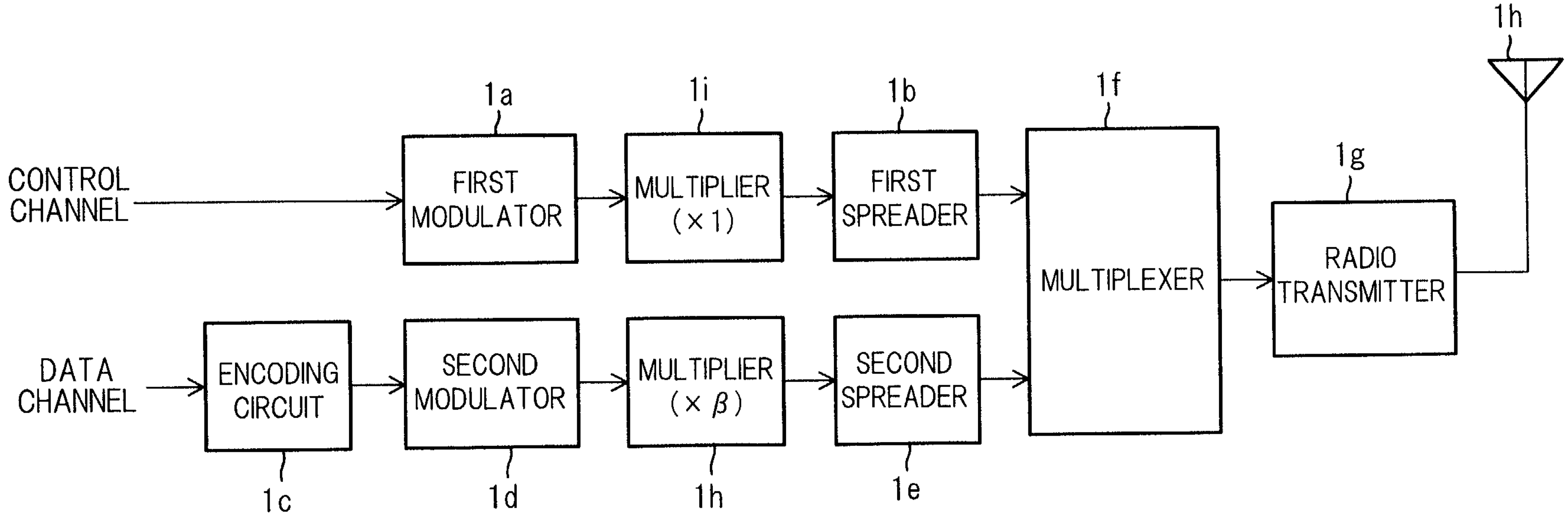


FIG. 14A PRIOR ART

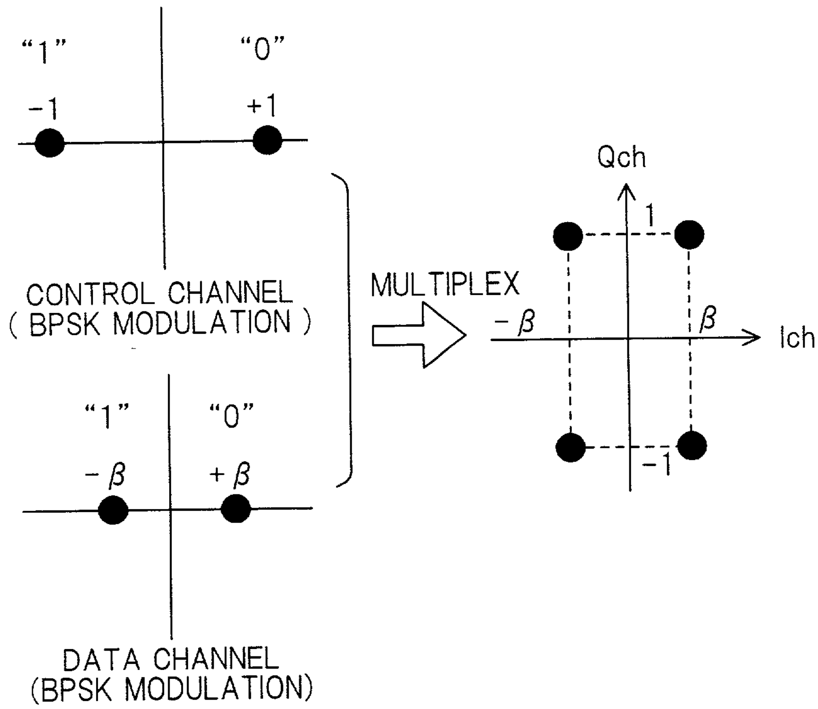


FIG. 14B PRIOR ART

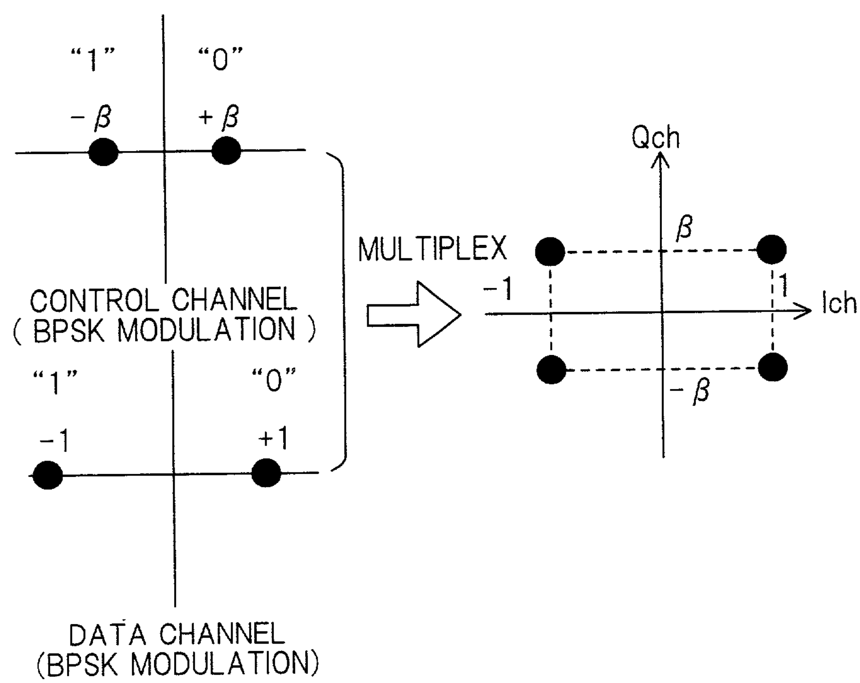


FIG. 15 PRIOR ART

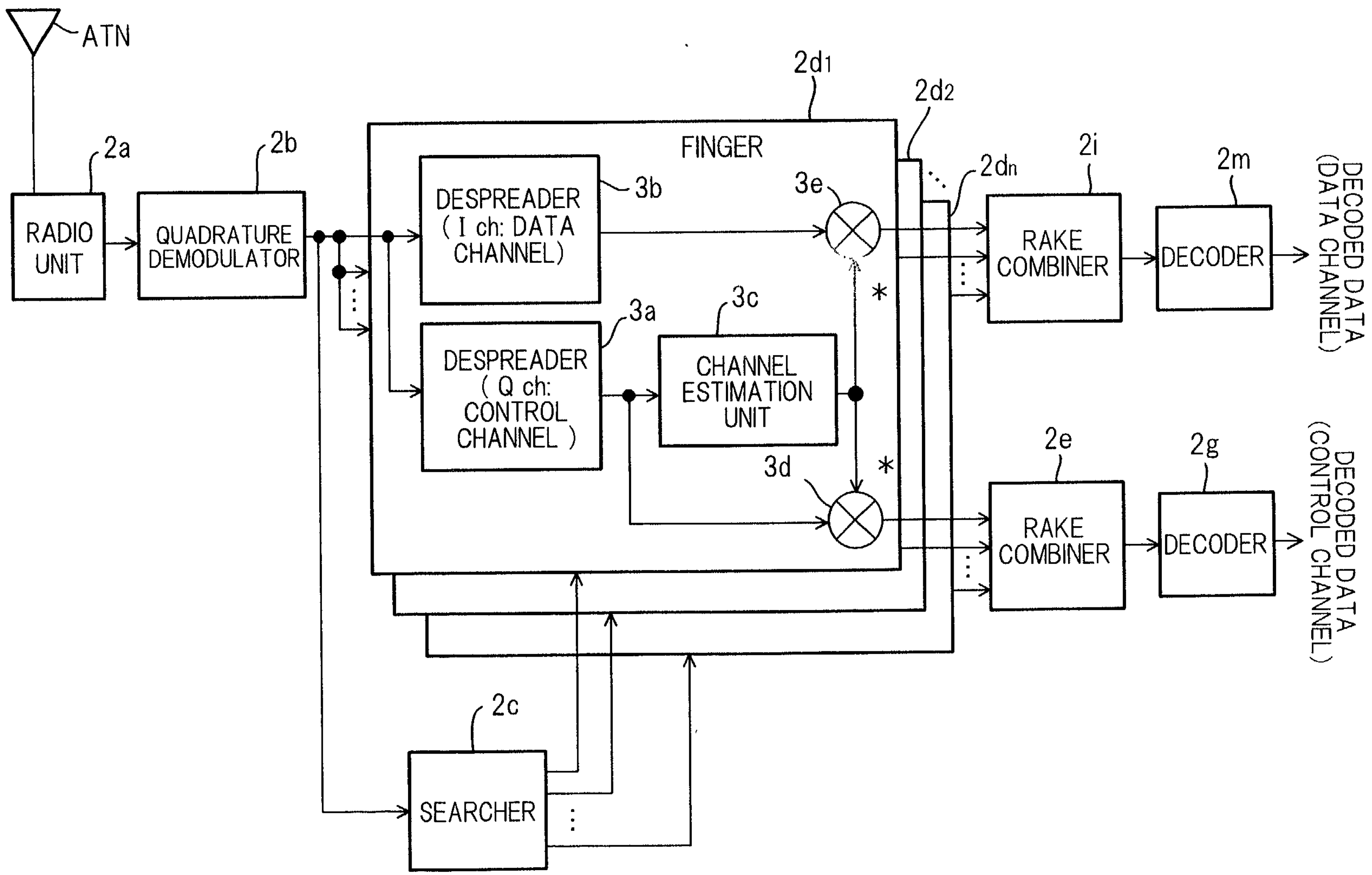


FIG. 16 PRIOR ART

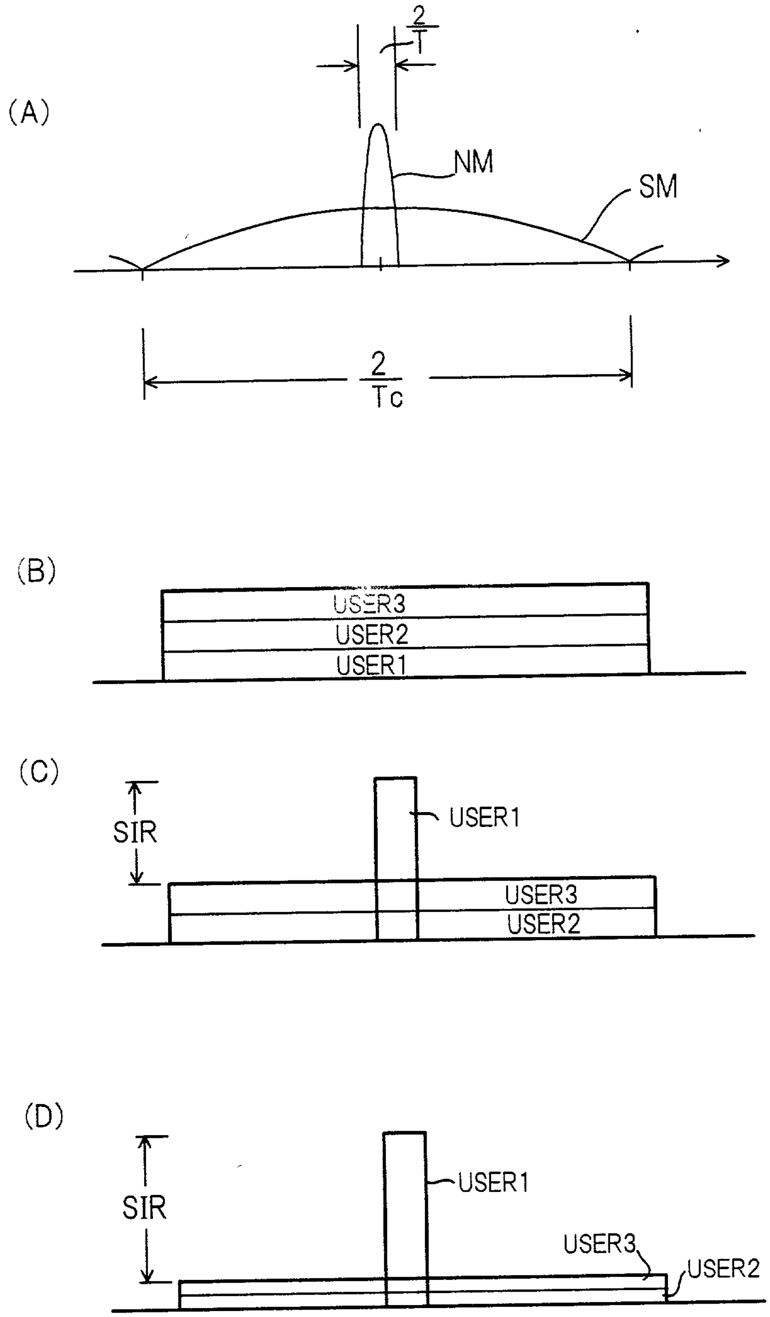


FIG. 17 PRIOR ART

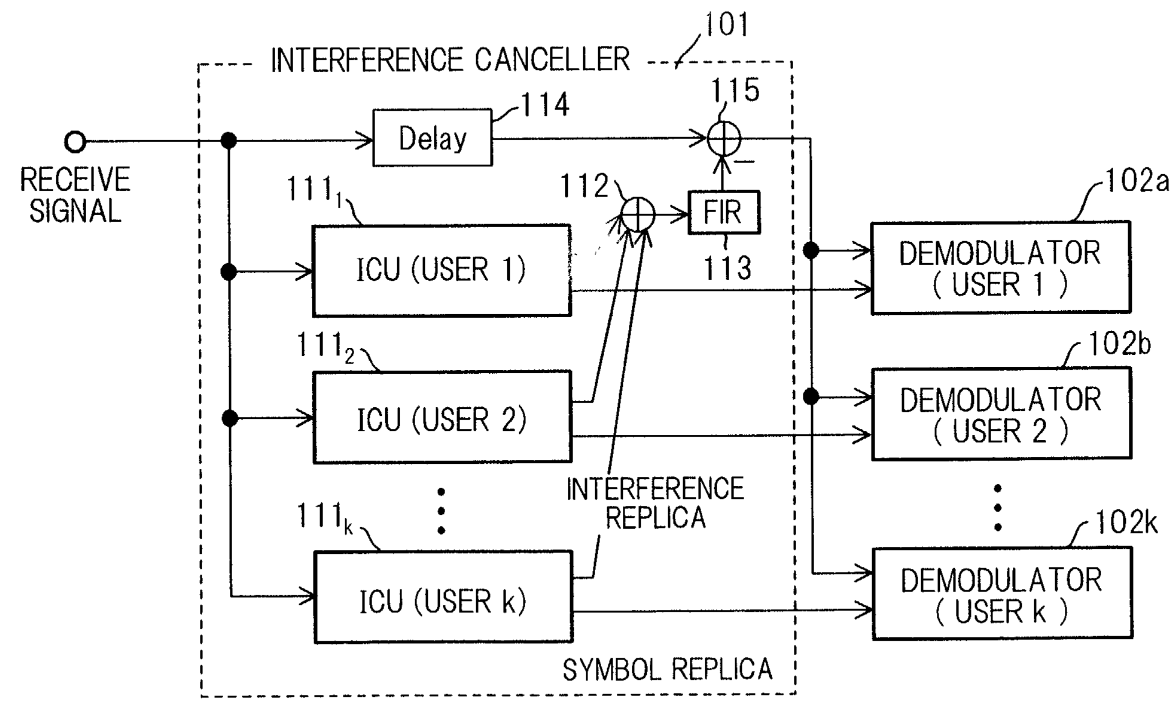


FIG. 18 PRIOR ART

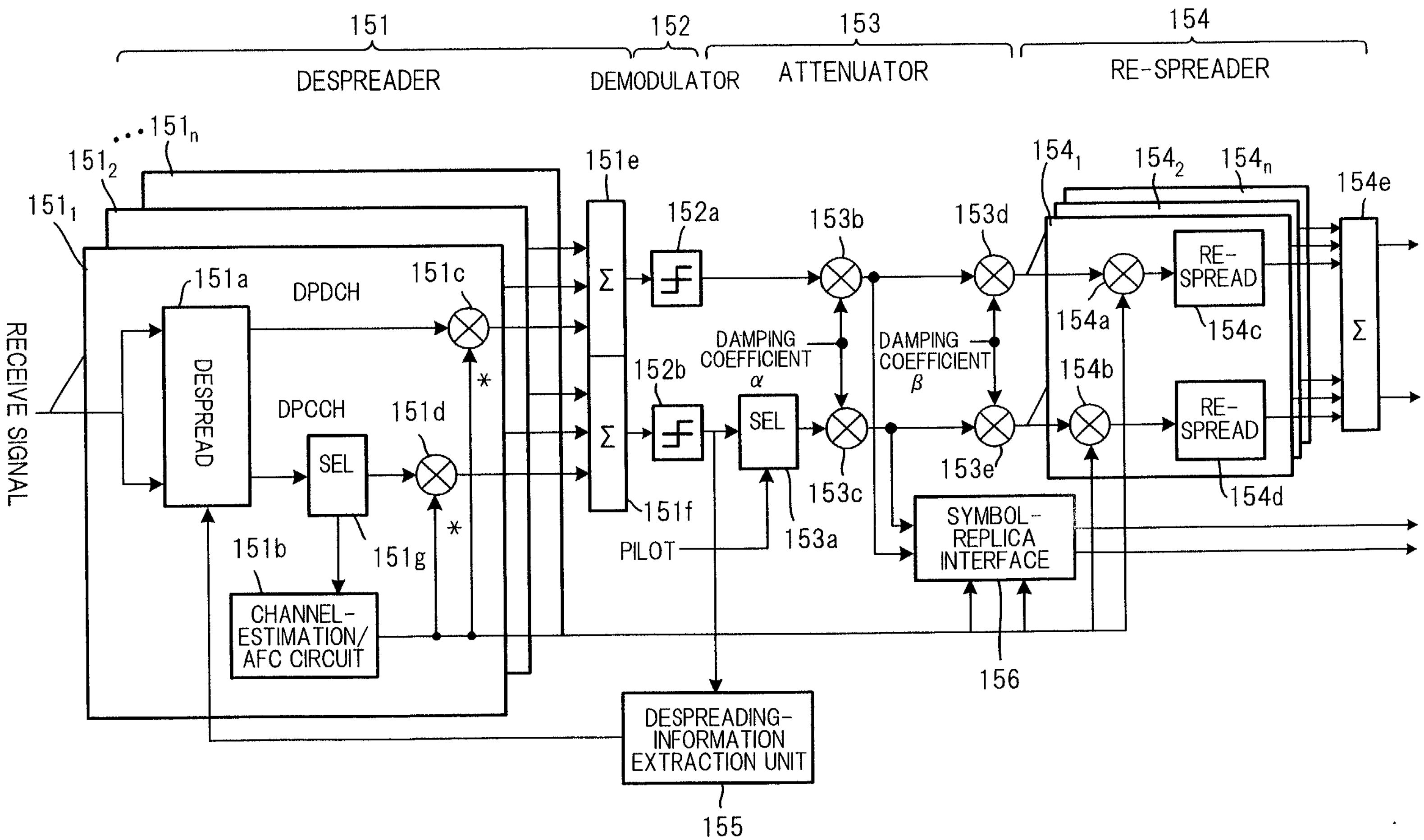


FIG. 19 PRIOR ART

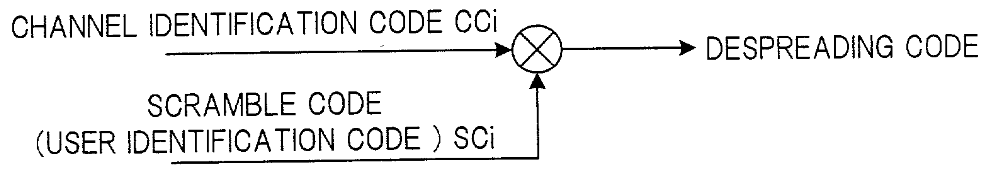


FIG. 20A PRIOR ART

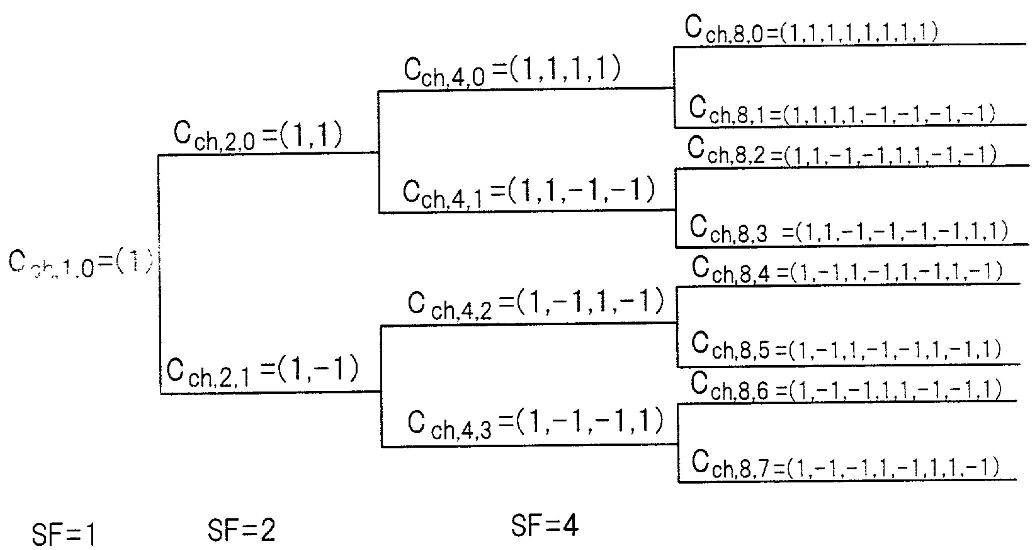


FIG. 20B PRIOR ART

$$C_{ch,1,0}=1$$

$$\begin{bmatrix} C_{ch,2,0} \\ C_{ch,2,1} \end{bmatrix} = \begin{bmatrix} C_{ch,1,0} & C_{ch,1,0} \\ C_{ch,1,0} & -C_{ch,1,0} \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix}$$

$$\begin{bmatrix} C_{ch,2(n+1),0} \\ C_{ch,2(n+1),1} \\ C_{ch,2(n+1),2} \\ C_{ch,2(n+1),3} \\ \vdots \\ C_{ch,2(n+1),2(n+1)-2} \\ C_{ch,2(n+1),2(n+1)-1} \end{bmatrix} = \begin{bmatrix} C_{ch,2^n,0} & C_{ch,2^n,0} \\ C_{ch,2^n,0} & -C_{ch,2^n,0} \\ C_{ch,2^n,1} & C_{ch,2^n,1} \\ C_{ch,2^n,1} & -C_{ch,2^n,1} \\ \vdots & \vdots \\ C_{ch,2^n,2^n-1} & C_{ch,2^n,2^n-1} \\ C_{ch,2^n,2^n-1} & -C_{ch,2^n-1} \end{bmatrix}$$

FIG. 21 PRIOR ART

FOR SPREADING FACTOR SF (=16)

SYMBOL DATA	Data1	Data2
CHANNEL IDENTIFICATION CODE	"0011001100110011"	"0011001100110011"

FOR SPREADING FACTOR SF_{min} (=4)

SYMBOL DATA	Data1	Data2	Data3	Data4	Data5	Data6	Data7	Data8
CHANNEL IDENTIFICATION CODE	"0011"	"0011"	"0011"	"0011"	"0011"	"0011"	"0011"	"0011"

SF/SF_{min}

FIG. 22 PRIOR ART

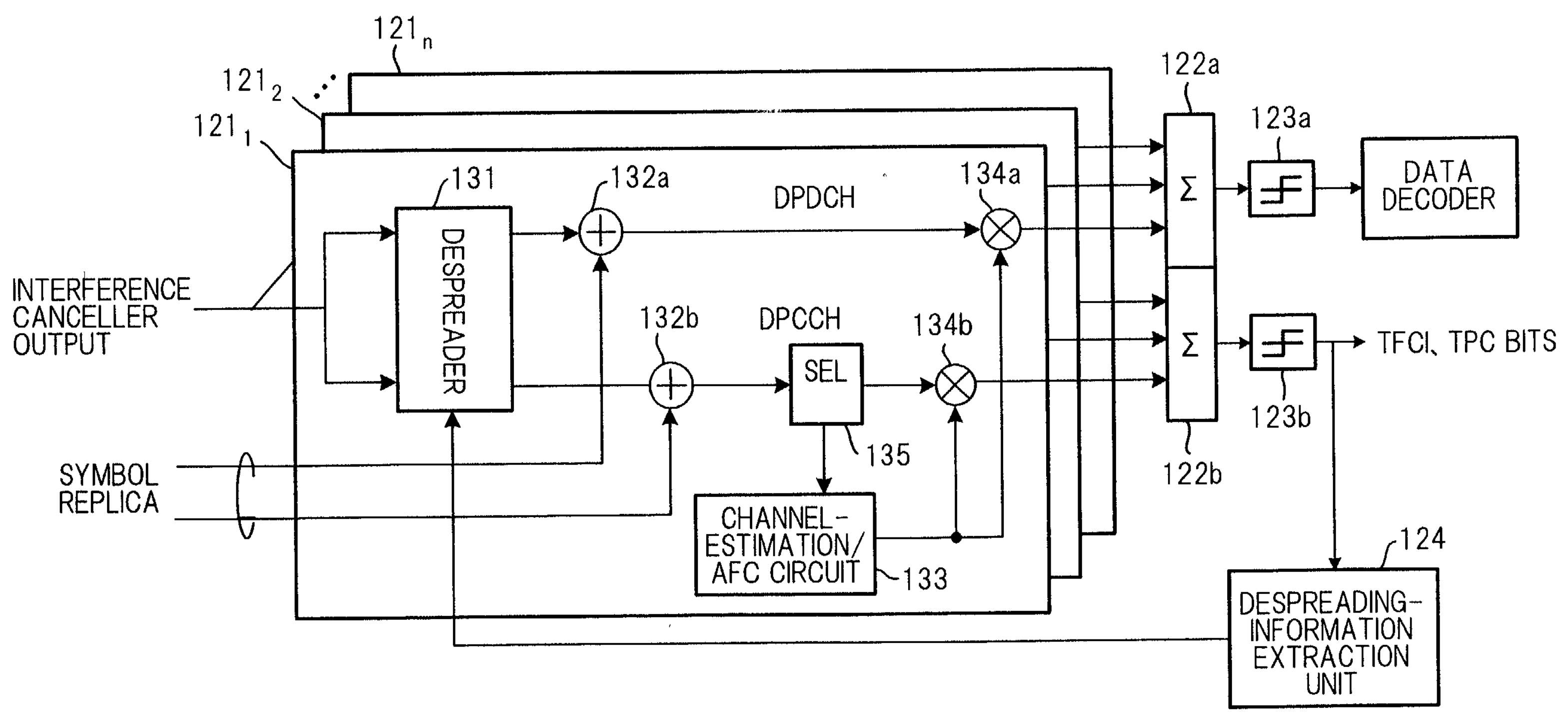


FIG. 23 PRIOR ART

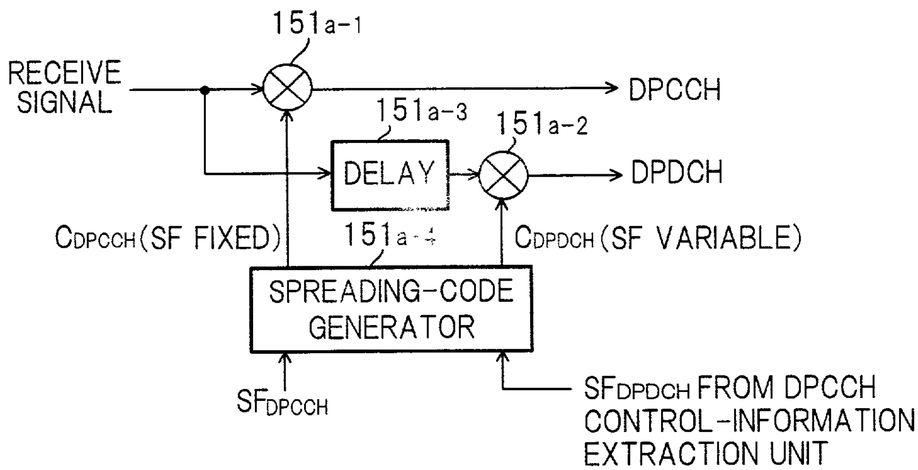


FIG. 24 PRIOR ART